



Eightieth Penmetal year

Penmetal lath and plastering accessories

12a
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PENMETAL Expanded Metal for Industrial purposes

the standard for over three-quarters of a century

Penn Metal Company, Inc., established in 1869, has been engaged continuously in the fabrication of steel products for more than 75 years. Since the invention of Expanded Metal Lath and Expanded Metal we have played a prominent part in the many developments and improvements that have taken place in this industry. Expanded Metal materials and the various accessories used with them are now our principal products. **WE ARE SPECIALISTS IN THEIR MANUFACTURE AND USE.** As specialists, we offer not only materials which represent the latest developments and improvements from a production standpoint, but also our long experience and knowledge as to their application in modern building construction and industrial work.

Penn Metal Company, Inc.

GENERAL SALES OFFICES: 205 East 42nd St., New York 17, N. Y. **FACTORY:** Parkersburg, W. Va.
DISTRICT SALES OFFICES:

Boston, Mass.

Philadelphia, Pa.

Detroit, Mich.

Chicago, Ill.

New York, N. Y.

Indianapolis, Ind.

Parkersburg, W. Va.

Los Angeles, Cal.

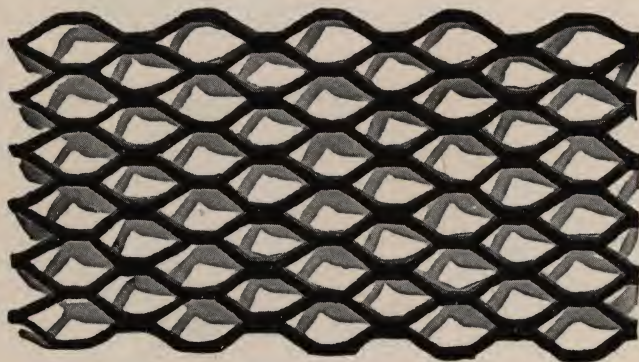
San Francisco, Cal.

Dallas, Tex.

Seattle, Wash.

PENMETAL

MESHTEX • a small diamond mesh type of expanded metal lath



(Actual size)

MESHTEX is a general purpose lath, ideal as a plaster base in practically all kinds of construction—walls, solid partitions, ceilings; fireproofing of steel beams and columns, curved surfaces and ornamental plaster work.

MESHTEX provides maximum (and uniform) reinforcement with a minimum weight of steel.

painting lath made from copper alloy

available in:

2.5# sq. yd. painted

3.4# sq. yd. painted

3.4# sq. yd. galvanized

sheets 27" x 96" (2 sq. yds.)

packed 10 sheets (20 sq. yds.) to a bundle

for spacings of supports for MESHTEX, see table, page 3.

The strands are turned to induce free flow of plaster without cutting the key.

The openings of MESHTEX are just large enough for perfect keying of scratch coat, with minimum labor and material and maximum rigidity. Enough plaster keys on reverse side of the lath to cover the strands, thus forming—not a background—but a *reinforcement for the plaster*.

DURABOND • the flat rib type of metal lath



made from copper alloy

available in:

2.75# sq. yd. painted

3.4# sq. yd. painted

sheets 27" x 96" (2 sq. yds.)

packed 10 sheets (20 sq. yds.) to a bundle

ribs 1/8" deep, 1 1/8" on center

center rib 1/2" from bracing rib

for spacings of supports for DURABOND
see table, page 3.

(Actual Size)

DURABOND is designed principally for wood construction, for both ceilings and walls. Its remarkable rigidity permits wider spacing of the supports.

The ribs form a ground for the trowel to work on, which prevents waste by permitting just enough plaster to flow through the openings to form a key. No leveling off is necessary when the brown coat is applied. The scratch coat hardens sufficiently so that the brown coat can be applied without removing the staging—thus lowering the labor cost.

DURABOND is unexcelled as a *plaster-saving lath* because of its rigidity and the *width* of the ribs.

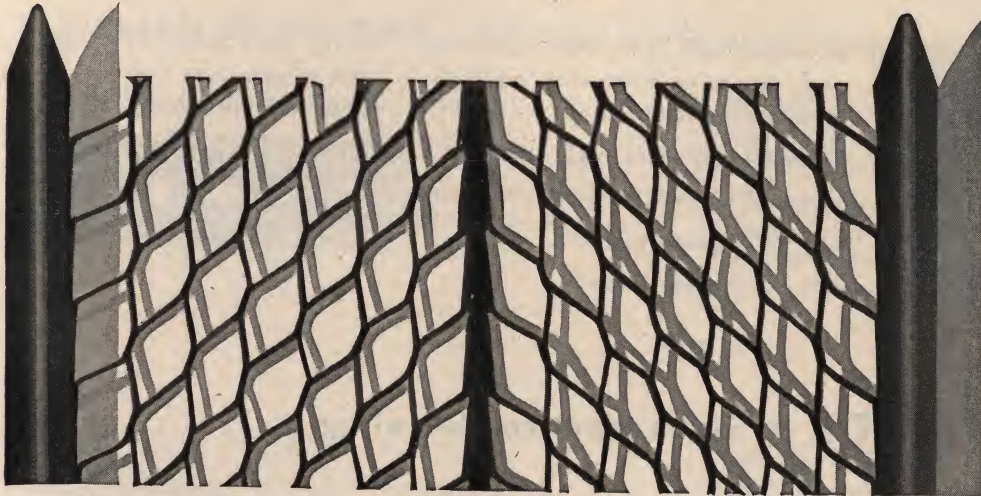
Its rigidity prevents sagging and gives an even, firm surface for plastering.

The extra wide ribs present a maximum surface of flat metal (more than one-half of the total area) for the economical use of plaster.

The flat, smooth surface of DURABOND makes ideal nailing; stapling is not necessary.

DURABOND sheets "nest" together when bundled, insuring protection in transportation.

MASTERIB • a $\frac{3}{8}$ " rib lath of exceptional rigidity



made from copper alloy

available in:

3.4# sq. yd. painted

4.0# sq. yd. painted

sheets 27" x 96" (2 sq. yds.)

packed 10 sheets (20 sq. yds.)
to a bundle

ribs $\frac{3}{8}$ " deep, $4\frac{1}{2}$ " on center
for spacings of supports for MAS-
TERIB, for plaster ceilings and walls,
see table below.

(Actual size)

MASTERIB for Ceilings and Partitions, for Brick
or Terra Cotta Walls and for Exteriors

3.4# MASTERIB is used as a base for plaster on
ceilings and on straight-away work on partitions and
exterior walls where air space is needed. In such con-
struction large savings can be realized in material and
labor because of the considerably wider spacing be-
tween supports and elimination of cross-furring.

MASTERIB for Floors

MASTERIB is used as a reinforcement and per-
manent centering for concrete floors with steel joists
and beams; also for precast concrete or gypsum slabs.
Poured structural slabs of concrete, gypsum or other
similar material should not be less than 2" thick, poured
on MASTERIB for spans not exceeding 24". Use
temporary supports for longer spans.

Dead Load: Concrete floors, 12 pounds per inch of
thickness per sq. ft. of floor area.
Wood floor finish not less than 3 pounds
per sq. ft. of floor area.

Distinctive Features of PENMETAL Lath:

1. Each sheet is painted singly and dried by infra-red rays,
assuring a uniform and perfectly dried coating and proper protec-
tion until it reaches the plastering stage.
2. Each sheet is trimmed square at each end separately,
sheet by sheet. When metal lath is trimmed in bundles the top

The ribs on MASTERIB are U-shaped—no flanges.
The material is expanded right up to the edges of the
ribs, giving a perfect key and preventing cracks in
plaster due to different co-efficient of expansion be-
tween mesh and flanges.

When MASTERIB is used on walls and ceilings as a
self-furring lath, the top of the rib should be placed
against the supports.

LOADING TABLE FOR MASTERIB

SAFE TOTAL LOADS FOR ROOFS AND FLOORS IN LBS. PER SQ. FT.

Thickness of Concrete	Wgt. of Lath Sq. Yd.	Wgt. of Lath Sq. Ft.	Span in Inches			
			12	16	19	24
2"						
Wgt.—24 lbs.	3.4#	.378#	950	536	380	238
per sq. ft.	4.0#	.445#	1090	613	433	271
2½"						
Wgt.—30 lbs.	3.4#	.378#	1200	675	479	300
per sq. ft.	4.0#	.445#	1360	766	544	340
3"						
Wgt.—36 lbs.	3.4#	.378#	1450	815	578	362
per sq. ft.	4.0#	.445#	1650	930	625	412

and bottom sheets are distorted and bent on the edges, causing an
impediment to the plasterer's trowel.

3. Size of sheets (27" x 96") gives an even 2 sq. yds. per sheet
(20 sq. yds. per bundle)—eliminating troublesome fractions
and providing greater speed and accuracy in figuring, invoicing
and stocktaking.

MAXIMUM SPACING OF SUPPORTS FOR METAL LATH (IN INCHES)

Type of Metal Lath	Wgt. per Sq. Yd.	WALLS			CEILINGS	
		Wood Studs	2" Solid Partitions	Steel Studs, etc.	Concrete or Wood Joists	Suspended on Channels and Bar Joists
MESHTEX (Diamond Mesh).....	2.5# 3.4#	16 16	16 16	12 16	16	13½
DURABOND (Flat Rib).....	2.75# 3.4#	16 19	16 24	16 19	16 19	12 19
MASTERIB ($\frac{3}{8}$ " Rib).....	3.4# 4.0#	24 24	24 24	24 24	24 24	19 24

NOTE: Standard spacings of supports are 12, 13½, 16, 19 and 24 inches center to center, and metal lath may be used on any spacing up to the maximum shown for each type and weight of metal lath.

PENMETAL

STUCCO MESH



Size of diamond, 1 1/4" x 3"

A comparatively heavy steel reinforcing mesh, popular for stucco work, especially in cement gun construction.

sheets 27" x 96" (2 sq. yds.)

packed 10 sheets (20 sq. yds.) to a bundle

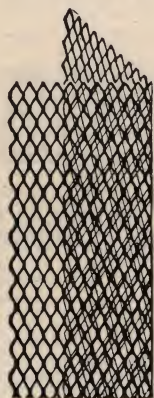
1.8# No. 18 gauge, painted

3.6# No. 16 gauge, painted

Furring Nails frequently used in conjunction with stucco mesh are available in boxes containing 7 lbs. (approximately 850 nails).



CORNERITE and STRIPITE • made from copper alloy



Cornerite

A narrow strip of 2.5# Painted MESHTEX, 8 feet long, bent at right angles — used for reinforcing inside corners of walls and partitions in wood, tile or plasterblock construction.

Width of Flanges	Lin. Ft. per Package	Wgt. per 1000 Lin. Ft.
2" x 2"	600	100#
3" x 3"	600	145#



Stripite

Made from 2.5# Painted MESHTEX, 3 inches wide by 8 feet long — used extensively in reinforcing joints in plasterboard construction.

Lin. Ft. per Package	Wgt. per 1000 Lin. Ft.
600	75#

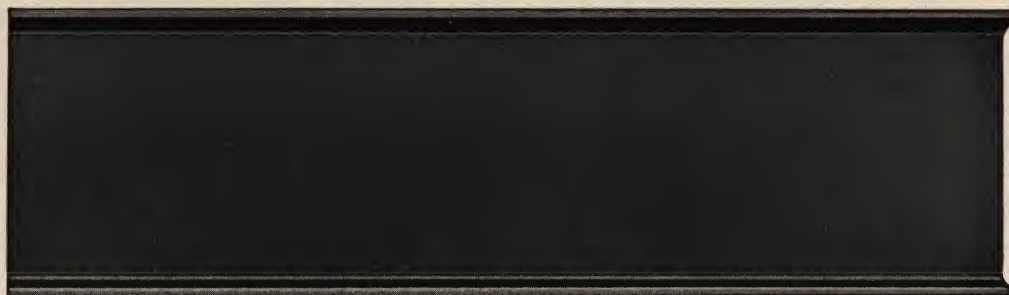
COLD ROLLED CHANNEL IRON



3/4" COLD ROLLED CHANNEL



(Actual size)



1 1/2" COLD ROLLED CHANNEL



(Actual size)

Size	Wgt. per M Lin. Ft.	Stock Lengths	Pcs. per Bundle
3/4"	300 lbs.	16', 20'	20
1 1/2"	475 lbs.	16', 20'	10

Channel Iron furnished only in the painted.

METAL LATH ACCESSORIES • 26 U. S. standard gauge, tight-coat galvanized STANDARD WING BEAD — the most widely used type of corner bead

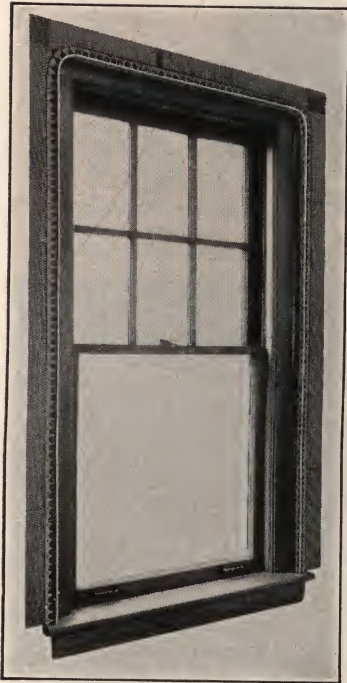
for straight, arch and window work



$1\frac{3}{8}$ " flange
8, 9, 10, 12
foot lengths

PENMETAL Corner Bead is an outside corner reinforcement and ground for plaster, making it easy to line up a perfect corner.

The oblong openings, 1" center to center, form a perfect key for plaster, reinforcing the nose and strengthening the corner.



PENMETAL Bead can be used for ARCH WORK — at doorways and around windows. Its use around windows is much more economical than wood or metal trim and makes a more attractive finish.

To join the bead, cut off the head of an 8D nail and insert in the nose of the bead.

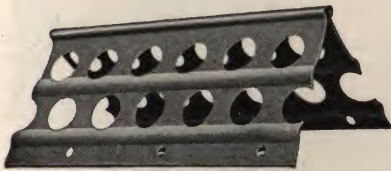
FOR ARCHES



To form an arch no mechanical bender is necessary — all the work can easily be done with tinner's shears. The openings of the bead are placed in pairs to facilitate the snapping of the wing and the bending of the bead by hand to the desired radius. The bead will not break or buckle at the nose when bent but will form a perfect radius.



2½" WIDE FLANGE CORNER BEAD



STANDARD BULL NOSE CORNER BEAD

$\frac{3}{4}$ " radius
 $1\frac{3}{8}$ " flange



½" GROUNDS STANDARD BASE SCREED



Standard lengths: 8, 9, 10 and 12 feet. Standard lengths: 7, 8, 9, 10 and 12 feet. Length: 10 feet.

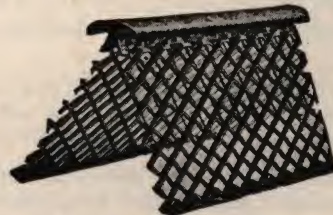
2½" FLANGE EXPANSION BEAD



Standard Lengths: 8, 9, 10 and 12 Feet.

EXPANSION BULL NOSE BEAD NO. 10

$\frac{3}{4}$ " Radius; 2½" Flange



Standard Lengths: 7, 8, 9, 10 and 12 Feet.

PENMETAL

PENMETAL STEEL STUDS FOR NON-BEARING HOLLOW PARTITIONS

PENMETAL Steel Studs offer the following advantages: (1) sound resistance; (2) concealment of unsightly pipes and conduits, saving in expense of cutting chases; (3) economical construction — PENMETAL Hollow Partition weighs when plastered 16 to 20 lbs. per sq. ft., thus permitting economical structural design with maximum strength and less cleaning up after completion; (4) structural rigidity to resist lateral earth movements, as Studs are stronger than tile or blocks.

PENMETAL Hollow Partition Steel Studs — punched with openings for pipe and conduits ranging from $3\frac{1}{4}$ " to 6" in width — are preferably spaced 36" to 48" apart with $\frac{3}{4}$ " steel furring channels spaced approximately 16" between the Studs to permit rapid and practical insertion of steel pipes between the studding. Studding spaced at approximately 16" has been found impractical as more cutting would be necessary, resulting in weakening the structural strength and adding to over-all costs.

PENMETAL STANDARD STEEL STUDS

(FURNISHED PAINTED ONLY) are designed with the same number of openings

in every lineal foot of length; i. e., the 6" size has two openings per foot of length; the 4" and $3\frac{1}{4}$ " sizes have three openings per foot. Shoes ($2\frac{1}{2}$ " long) for $3\frac{1}{4}$ " and 4" studs are interchangeable. Shoes (5" long) furnished for 6" studs. Standard length of track: 10 feet. Studs (all widths): 8, 9, 10, 12, 13, 14, 16, 18 and 20 feet.

SAFE TOTAL LOAD IN POUNDS PER LINEAL FOOT OF STUD

Simple Span — Uniform Load

Working Stress 15,000 Pounds per Square Inch

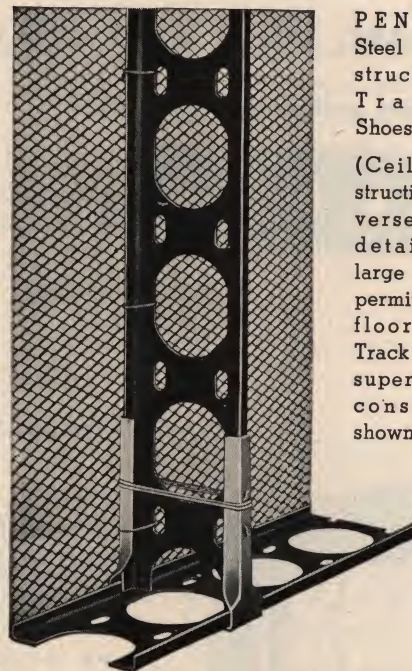
Clear Span in Ft.	Depth in Inches			Clear Span in Ft.	Depth in Inches		
	$3\frac{1}{4}$ "	4"	6"		$3\frac{1}{4}$ "	4"	6"
4	110	..	..	12	12	16	34
5	70	92	..	13	10	13	29
				14	..	11	25
6	49	64	136	15	..	10	21
7	36	47	100	16	..	..	19
8	27	36	76	17	..	..	17
9	21	28	60	18	..	..	15
10	17	23	49	19	..	..	13
11	14	19	40	20	..	..	12

Studs must be braced laterally in order to support tabular loads.

Safe total load for any stress is in direct proportion to that stress. Problem: What would be safe load per foot with stress of 18,000 lbs. per sq. in., span 12', 6" stud? Answer: Tabular value is 34; therefore, $34 \times 18,000/15,000 = 41$ lbs. per lin. ft.

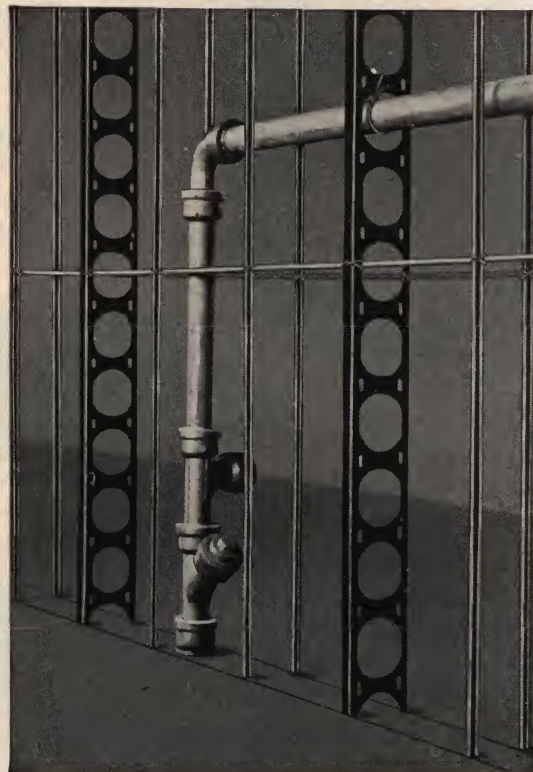
Spacing in inches equals tabular load $\times 12$ /load per sq. ft. Problem: What spacing is required for 4" stud to support 27 lbs. per sq. ft., span 8'? Answer: Tabular value is 36; therefore, $36 \times 12/27 = 16$ " on centers.

Load per square foot equals tabular load $\times 12$ /spacing in inches. Problem: What safe load will $3\frac{1}{4}$ " studs support if spaced 24" on centers, span 6'? Answer: Tabular value is 49; therefore, $49 \times 12/24 = 24$ lbs. per sq. ft.



PENMETAL Steel Stud Construction with Track and Shoes.

(Ceiling construction is reverse of floor detail.) Note large holes to permit bolting to floor. Use of Track is being superseded by construction shown below.



PENMETAL Steel Stud Construction without Track and Shoes.

This type of Steel Stud construction gives additional strength by anchoring each Stud in concrete floor and ceiling, and economy in construction by omission of Track. Nailing at top and bottom, tying on Shoes and other time-consuming operations are eliminated.

PENMETAL STEEL STUDS

With the conduit and service piping in place, PENMETAL Hollow Partition Stud is ready for application of Metal Lath. It is better to start lathing at top of partition so that any special cutting to width will be left for the portion near floor, where it is more easily done than on scaffold. To facilitate plastering, upper edge of lower sheet should lap over lower edge of upper. With lathing on upper part of partition completed, scaffold can be moved to another partition while tying gang is finishing the bottom lathing.

Metal Lath is applied on each side of Studs. The exposed surface of Lath is covered with slightly less than $\frac{3}{4}$ " of plaster, making finished thickness of partition approximately $1\frac{1}{4}$ " wider than the width of PENMETAL Stud used.

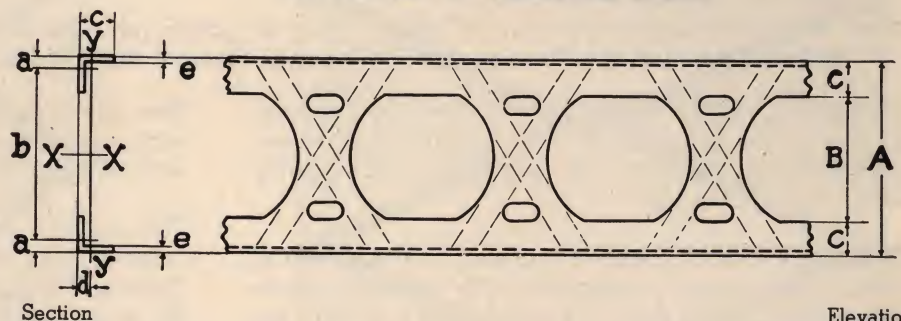
SPECIFICATIONS

- Partitions shall be of PENMETAL 16 gauge Steel Studs Painted, finished on both sides with Metal Lath and plaster as follows:
- STUDS shall be fastened to floor and ceiling in manner approved by the architect. Where Studs are set into holes in the concrete floor they shall be set in not less than $\frac{1}{2}$ ". Where no suspended ceiling is used Studs shall be attached to concrete floor above by use of PENMETAL Track and Shoes. Where suspended ceilings of Channel Iron and Metal Lath are used, Studs shall be securely wired to a special channel, which shall be fastened to the suspended ceiling along the line of the partition, and for this purpose the Studs shall extend above the suspended ceiling.
- PENMETAL Steel Studs shall be spaced 48" on center, with $\frac{3}{4}$ " PENMETAL Cold Rolled Channels spaced 16" on center between the Studs in manner shown on the detail drawing; Cold Rolled Channels to be securely fastened to horizontal Channels which are spaced vertically every 3 or 4 feet between floor and ceiling and securely wired to the Studs.
- Metal Lath to be MESHTEx, weighing 3.4# per sq. yd.; size of sheet, 27" x 96"; each sheet to be resquared singly, painted one sheet at a time, and oven-baked dry.
- MESHTEx to be lapped 1" on ends and $\frac{1}{2}$ " on sides and wired to studding with 18 gauge galvanized annealed tie wire.
- CORNERITE to have 3" legs where partition joins masonry or concrete on walls and ceilings.
- WOOD GROUNDS of proper thickness shall be secured to partition by means of wood nailing blocks.
- METAL BASE, PICTURE MOULDING and CORNER BEADS to be wired to partition after it is in place.
- DOOR BUCKS of wood or metal to be out-to-out dimensions to allow casing to cover joint between buck and plaster by at least 1".

Construction Details of
Suspended Ceiling (no
Track necessary)



PROPERTIES OF PENMETAL STUDS



A	$3\frac{1}{4}$ "	4"	6"	A
B	1.7500	2.5000	4.5000	B
C	0.7500	0.7500	0.7500	C
a	0.2500	0.2500	0.2040	a
b	2.7500	3.5000	5.5920	b
c	0.5000	0.5000	0.8125	c
d	0.1240	0.1240	0.2350	d
e	0.0625	0.0625	0.0625	e

	$3\frac{1}{4}$ "	4"	6"
Area Square Inches.	0.1480	0.1480	0.1870
Axis x-x			
Moment of Inertia.	0.2880	0.4630	1.4700
Section Modulus.	0.1770	0.2310	0.4900
Radius of Gyration.	1.4000	1.7700	2.8000
Axis y-y			
Moment of Inertia.	0.0030	0.0030	0.0120
Section Modulus.	0.0080	0.0080	0.0208
Radius of Gyration.	0.1430	0.1430	0.2530

Note: All dimensions are in inches.

- TRACK to be securely attached to ceiling and floor (by means of 18 gauge galvanized annealed wire or concrete nails) and leveled. Studs and Shoes to be attached to Track with double strands of 18 gauge galvanized annealed tie wire.

ALTERNATE SPECIFICATIONS

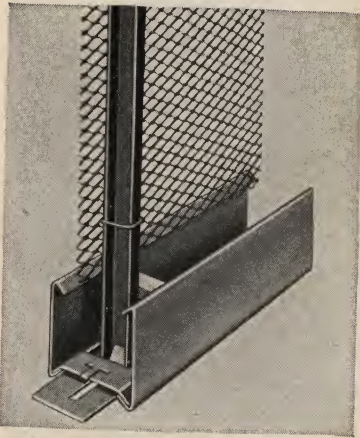
(For use with Track on Floor and Ceiling)

Substitute in above specifications for clauses (2) and (3) the following:

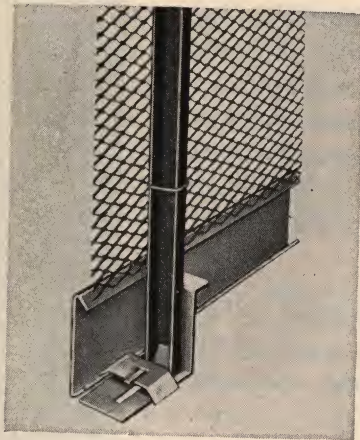
- STUDS to be spaced 16" on center with 3.4# MESHTEx. (If 2.75# DURABOND used, space 16" on center; if 3.4# DURABOND used, space 19" on center; if 3.4# MASTERIB used, space 24" on center.)

PENMETAL

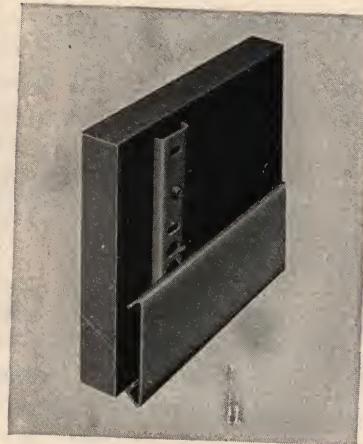
PENMETAL BASE—TYPES OF ASSEMBLY



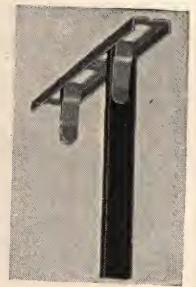
Assembly A



Assembly B



Assembly C



No. 150 Ceiling Runner
20 Ga. Galvanized
(Prongs 4" O.C.)



No. 130 Splice Plate
20 Ga. Galvanized

ASSEMBLY A—For 2" Solid Partitions—Metal Base No. 175 with Clip No. 176 and Spacing Clip No. 177.

ASSEMBLY B—For Furred Walls—Metal Base No. 175 with Clip No. 178 and Spacing Clip No. 179.

ASSEMBLY C—For Masonry Walls—Metal Base No. 175 with No. 180 Clip.

Base No. 175 is furnished 2½" or 3" high in 18 or 20 gauge galvanized steel painted light grey after forming. Splice Plates furnished one each 10'. Clips and Spacers furnished for 16" o.c.

PENMETAL STEEL BASE is furnished in separate pieces for the two sides, to be put together on the job, under the job conditions. All mitres are made quickly and easily on the job.

PENMETAL STEEL BASE is adapted to every type of wall where base is required. For masonry walls (terra cotta, brick, etc.) it is held in place at both top and bottom and is therefore absolutely immovable.

The specially-designed clips line up the partition, which is then ready to receive the Studs and Base without any further preparation.

The vertical channels require no lacing prior to lathing. They are fitted into the projecting lugs of the Ceiling Runner and dropped into the slot in the clip. No wood grounds are needed with **PENMETAL BASE**—the base itself forms the grounds.

SPECIFICATIONS for 2" Solid Metal Lath and Plaster Partitions

PARTITIONS to be of **PENMETAL** design, consisting of the following members:

STUDS to be ¾" Cold Rolled or Hot Rolled Channel, painted, weighing not less than 300 lbs. per 1,000 lin. ft. and spaced 16" on center for either 2.5# or 3.4# **MESHTEX**.

Stock lengths—16' and 20'. Can be made any length to order for large quantity job.

METAL LATH—**MESHTEX** (Diamond Mesh Lath), weighing 2.5# or 3.4# per sq. yd.; size of sheets, 27"x96" each; sheets to be resquared one at a time (not in bundle lots) and free from ragged edges or unevenness; each sheet to be painted singly (not in bundle lots) with paint baked on by infra-red ray process.

Lath to be lapped 1" on the ends, ½" on the sides and wired to the Channel Iron Studs with 18 gauge galvanized annealed tie wire; sheets also to be wired between the Studs.

METAL BASE No. 175 to be 18 or 20 gauge galvanized steel and coated both sides with a light grey paint; length of base, 10'; height of base, 2½" or 3".

MITRES—Prefabricated Mitres not required. Mitres to be made on the job by notching the Base at top and bottom and bending the Base to required angle.

SPLICE PLATES to be made of 20 gauge galvanized steel, not painted; all butting ends of Base to be joined with Splice Plate.

CLIPS Nos. 176, 178 and 180 and Spacing Clips Nos. 177 and 179 to be 20 gauge galvanized steel, not painted.

CEILING RUNNER No. 150 to be 20 gauge galvanized steel, 10' long; to be securely attached to ceiling by means of nails and leveled.

GROUNDS—No wood grounds are necessary when **PENMETAL BASE** No. 175 is used.

CORNERITE to have 3" legs where partition joins masonry or concrete on walls and ceilings.

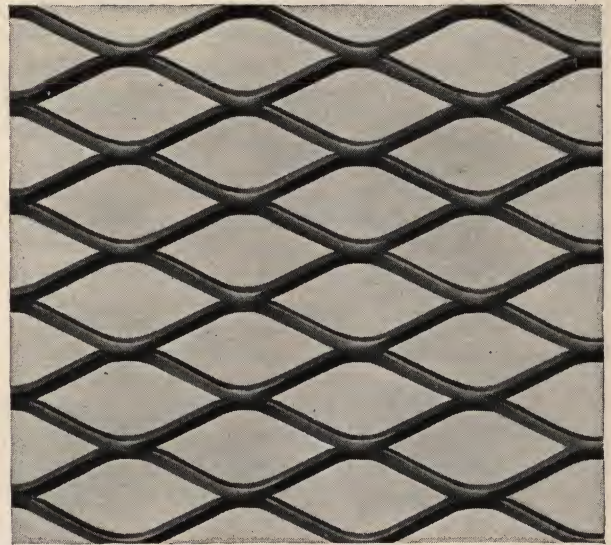
METAL PICTURE MOULDING AND CORNER BEADS to be wired to the partition after the partition is in place.

DOOR BUCKS OF WOOD OR METAL to be cut to dimensions to allow casing to cover joint between buck and plaster by at least 1".

PENMETAL EXPANDED METAL—STANDARD



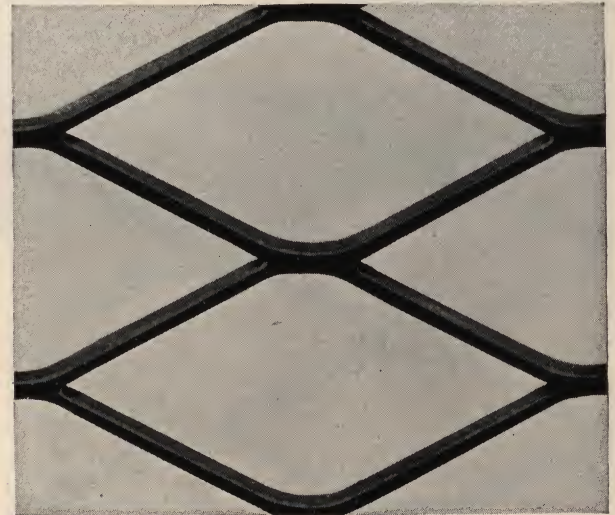
1/4 Inch Standard Expanded Metal (Actual size)



1/2 Inch Standard Expanded Metal (Actual size)



3/4 Inch Standard Expanded Metal (Actual size)



1 1/2 Inch Standard Expanded Metal (Actual size)

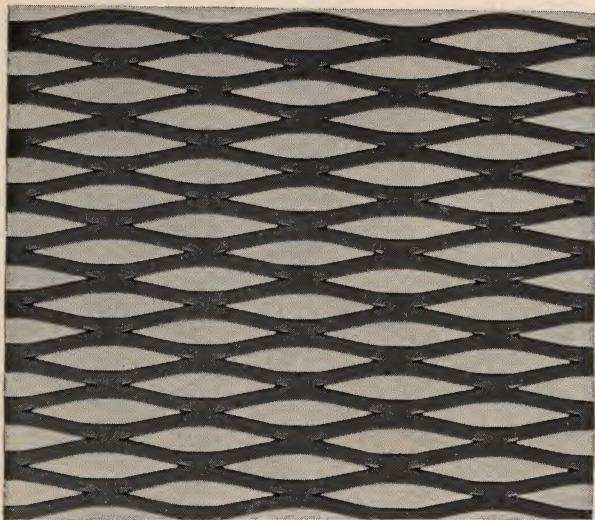
APPROXIMATE SIZES, DIMENSIONS AND WEIGHTS OF STANDARD EXPANDED METAL

Style Designation	Wgt. in Lbs. Per Sq. Ft.		Stock Sizes of Sheets	Normal Size of Mesh Centre to Centre of Bridges		Size of Strands		U. S. Standard Gauge Steel Used
	Plain	Galv.		Width	Length	Thickness	Width	
1/4"—#20	.86	1.29	4' x 8'	.255"	1.0"	.036"	.073"	20
1/4"—#18	1.14	1.71	4' x 8'	.255"	1.0"	.048"	.073"	18
1/2"—#40	.40	.50	4' & 6' x 8'	.45"	1.2"	.048"	.048"	18
1/2"—#18	.74	.91	4' & 6' x 8'	.45"	1.2"	.048"	.089"	18
1/2"—#16	.84	.97	4' & 6' x 8'	.45"	1.2"	.060"	.076"	16
1/2"—#13	1.47	1.73	4' & 6' x 8'	.45"	1.2"	.090"	.089"	13
3/4"—#16	.50	.59	4' & 6' x 8'	.923"	2.0"	.060"	.092"	16
3/4"—#13	.80	.92	4' & 6' x 8'	.923"	2.0"	.090"	.098"	13
3/4"—#10	1.20	1.36	4' & 6' x 8'	.923"	2.0"	.090"	.144"	13
3/4"—#9	1.80	1.95	4' & 6' x 8'	.923"	2.0"	.137"	.144"	10
1"—#16	.44	.51	4' x 8'	1.09"	2.4"	.060"	.091"	16
1 1/2"—#18	.20	.25	4' x 8'	1.33"	3.0"	.048"	.068"	18
1 1/2"—#16	.40	.48	4' x 8'	1.33"	3.0"	.060"	.106"	16
1 1/2"—#13	.60	.68	4' & 6' x 8'	1.33"	3.0"	.090"	.106"	13
1 1/2"—#10	.79	.89	4' & 6' x 8'	1.33"	3.0"	.090"	.143"	13
1 1/2"—#9	1.20	1.31	4' & 6' x 8'	1.33"	3.0"	.137"	.143"	10

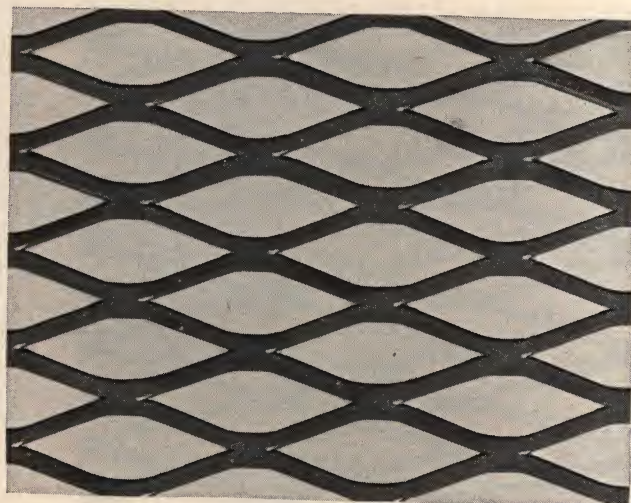
Style designation number does not always mean gauge number. (See last column for gauge numbers.)

PENMETAL

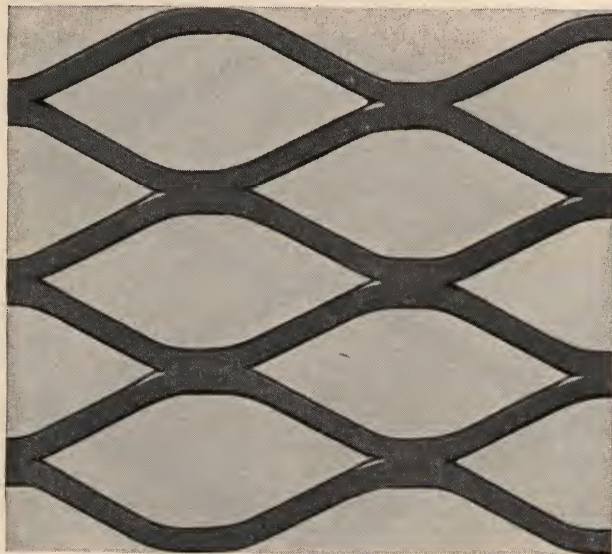
PENMETAL EXPANDED METAL—FLATTENED



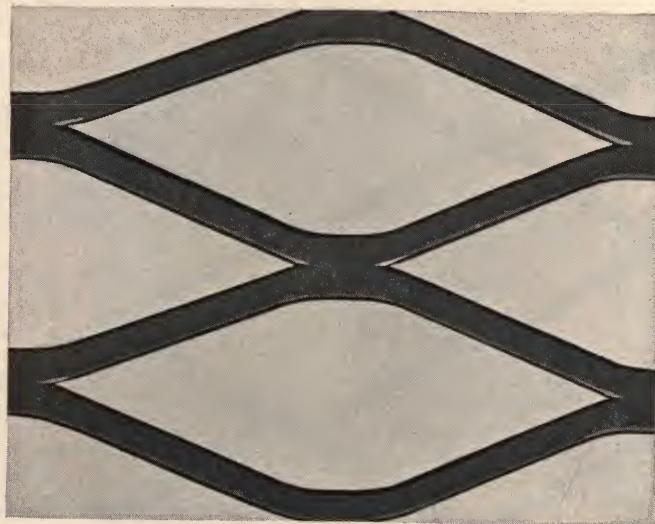
1/4 Inch Flattened Expanded Metal (Actual size)



1/2 Inch Flattened Expanded Metal (Actual size)



3/4 Inch Flattened Expanded Metal (Actual size)



1 1/2 Inch Flattened Expanded Metal (Actual size)

APPROXIMATE SIZES, DIMENSIONS AND WEIGHTS OF FLATTENED EXPANDED METAL

Style Designation	Wgt. in Lbs. Per Sq. Ft.		Stock Sizes of Sheets	Normal Size of Mesh Centre to Centre of Bridges		U. S. Standard Gauge Steel Used
	Plain	Galv.		Width	Length	
1/4" — #20	.82	1.24	4' x 8'	.255"	1.031"	20
1/4" — #18	1.08	1.65	4' x 8'	.255"	1.031"	18
1/2" — #40	.38	.49	3' & 4' x 8'	.45"	1.26"	18
1/2" — #18	.70	.88	3' & 4' x 8'	.45"	1.26"	18
1/2" — #16	.80	.97	3' & 4' x 8'	.45"	1.26"	16
1/2" — #13	1.40	1.62	3' & 4' x 8'	.45"	1.26"	13
3/4" — #16	.47	.59	3' & 4' x 8'	.923"	2.12"	16
3/4" — #14	.63	.79	3' & 4' x 8'	.923"	2.12"	14
3/4" — #13	.76	.92	3' & 4' x 8'	.923"	2.12"	13
3/4" — #9	1.71	1.86	3' & 4' x 8'	.923"	2.12"	10
1" — #16	.41	.50	4' x 8'	1.091"	2.562"	16
1 1/2" — #16	.38	.48	3' & 4' x 8'	1.33"	3.20"	16
1 1/2" — #14	.46	.56	3' & 4' x 8'	1.33"	3.20"	14
1 1/2" — #13	.57	.68	3' & 4' x 8'	1.33"	3.20"	13
1 1/2" — #10	.75	.89	3' & 4' x 8'	1.33"	3.20"	13
1 1/2" — #9	1.14	1.28	3' & 4' x 8'	1.33"	3.20"	10

Style designation number does not always mean gauge number. (See last column for gauge numbers.)

PENMETAL EXPANDED METAL

Expanded from a solid sheet of steel, PENMETAL Expanded Metal combines maximum **STRENGTH** with **LIGHTNESS**. The strands are cold drawn to give a truss-like formation to the diamond-shaped meshes—insuring **STRENGTH, RIGIDITY** and **FLATNESS**. Thus a diamond-shaped mesh is formed from the flat steel sheet which is lighter yet stronger, in tensile strength, than the original steel sheet.

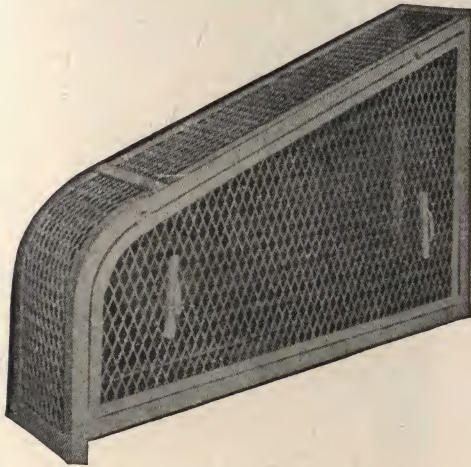
PENMETAL Expanded Metal has greater strength per square foot, pound for pound, than any other material and is especially adaptable where **SPACE SAVING, STRENGTH** and **LIGHTNESS** are essential. By expanding the steel, its elastic limit is doubled

and the breaking strength increased.

Expanded Metal is made principally from carbon steel, but it can also be made from stainless steel, aluminum, Monel metal, copper, etc.

PENMETAL Expanded Metal can be coated after fabrication to give special finishes; viz., hot-dip galvanized, electro-galvanized, nickel, cadmium or copper plated, buffed and polished, or painted.

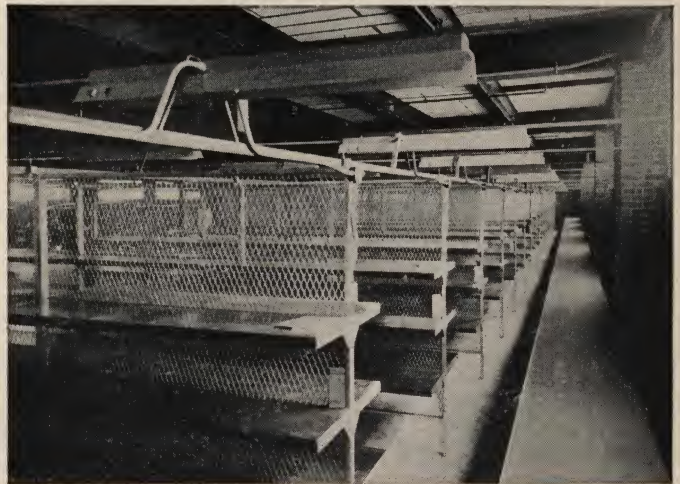
It can also be arc or resistance welded as there is no scale on the finished sheet.



Machine Guard of $\frac{3}{4}$ "—#13 Expanded Metal

Where a smooth, flat surface is required, the sheets are **FLATTENED** by means of heavy mill flattening rolls, making the strands and the bonds on the same plane in the sheets and slightly reducing the thickness of the sheet. Meshes are **DEBURRED** as required.

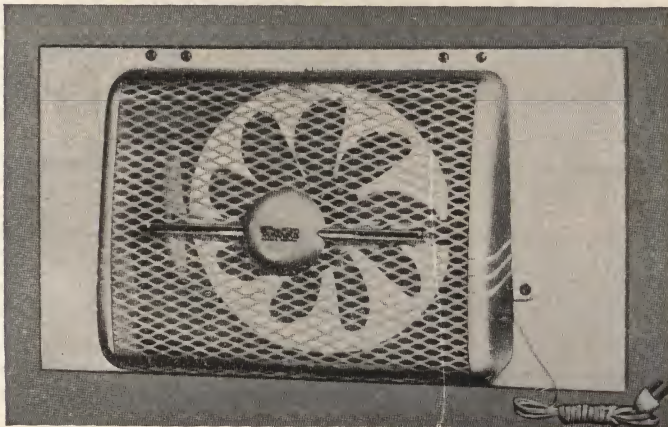
PENMETAL **FLATTENED** Expanded Metal is used especially where smooth, flat surfaces are desired. Typical uses are for strong bins, shelving, refrigerators, animal cages, etc. The material is not only strong and light in weight but also attractive in ap-



Open Partitions of $1\frac{1}{2}$ "—#13 Expanded Metal combined with steel shelving

pearance. Pleasing to the eye because of its regular diamond-shape pattern, it is an ideal background for window displays, providing a ready-made trellis for store fronts.

FLATTENED Expanded Metal is especially suited to welding because of its flat surface. No other type of mesh can be welded as easily or as satisfactorily. When galvanized after fabrication it will retain its bright, clean appearance indefinitely.

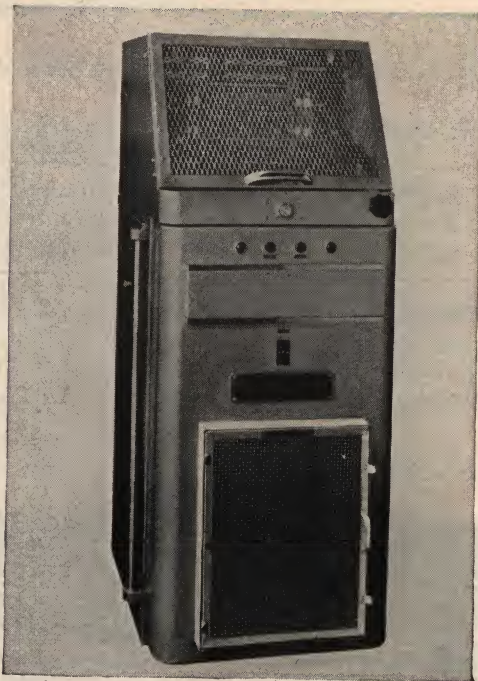


Window Ventilator Guard of $\frac{1}{2}$ "—#18 Flattened Expanded Metal



Basket of $\frac{1}{2}$ "—#18 Flattened Expanded Metal, Welded to Rod Frame

PENMETAL EXPANDED METAL



Heaters and Vending Machines use
 $\frac{1}{2}$ "—#18 Expanded Metal



Display Rack of $\frac{3}{4}$ "—#13 Flattened Expanded
Metal

A Few Uses for Penmetal Expanded Metal

Aircraft	Ladders
Animal cages	Machine and window guards
Auto emergency track	Mastic flooring
Baskets of all types	Novelty work
Bulkheads	Oil and air filters
Busses	Open partitions
Cargo vessels	Outdoor fireplaces
Deep freeze units	Pallets
Dehydrators	Radiator enclosures
Drying trays	Radio grounds
Electric heaters	Radios
Electric light guards	Rubbish burners
Fencing	Shelving
Flower boxes	Storage bins
Furniture	Toys
Garden chairs and benches	Trucks
Insulation support	Vending machines
Ironing boards	Ventilators

The $\frac{3}{4}$ " and $1\frac{1}{2}$ " meshes are also used for concrete reinforcement, concrete encasements, structural steel and precast concrete work.



Ironing Board of $\frac{1}{2}$ "—#18 Flattened Expanded
Metal with Steel Supports

ENGINEERING SERVICE

Our engineering advice is at your service for the further fabrication of standard size sheets of PENMETAL Expanded Metal into its many final uses. Send for complete Catalog No. 481ESA giving additional data on PENMETAL Expanded Metal.

PENN METAL COMPANY, INC.

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FACTORY - PARKERSBURG, WEST VIRGINIA

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